

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP00/03638

A. CLASSIFICATION OF SUBJECT MATTER
Int. Cl⁷ H03L 7/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int. Cl⁷ H03L 7/06-7/23

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1926-2000	Toroku Jitsuyo Shinan Koho	1994-2000
Kokai Jitsuyo Shinan Koho	1971-2000	Jitsuyo Shinan Toroku Koho	1996-2000

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP, 11-225069, A (Fujitsu Ltd.) 17 August, 1999 (17.08.99)	1
Y	Page 10, left column, line 25 to page 14, left column, line 42; Fig. 3 (Family: none)	2, 3, 8-10, 13, 16, 18-20
A		4-7, 11, 12, 14, 15, 17
Y	JP, 07-177027, A (Mitsubishi Electric Corporation) 14 July, 1995 (14.07.1995)	10
A	Page 6, left column, line 36 to page 7, left column, line 10; Fig. 1 (Family: none)	1-9, 11-20
A	JP, 10-336021, A (NEC Corporation) 18 December, 1998 (18.12.1998) Page 5, left column, line 7 to page 7, right column, line 33; Fig. 2 EP, 881774, A2	1-20

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not
considered to be of particular relevance
"E" earlier document but published on or after the international
filing date
"L" document which may throw doubts on priority claim(s) or
which is cited to establish the publication date of another
citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or
other means
"P" document published prior to the international filing date
but later than the priority date claimed

"T" later document published after the international filing date or
priority date and not in conflict with the application but cited to
understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot
be considered novel or cannot be considered to involve an
inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot
be considered to involve an inventive step when the document
is combined with one or more other such documents, such
combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search
16 August, 2000 (16.08.00)

Date of mailing of the international search report
29 August, 2000 (29.08.00)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

(19) 世界知的所有權機關
國際事務局



(43) 國際公開日
2001 年 12 月 13 日 (13.12.2001)

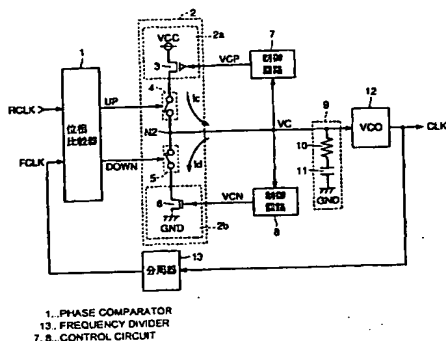
PCT

(10) 国際公開番号
WO 01/95492 A1

- | | | |
|---|-------------------------|--|
| (51) 国際特許分類: | H03L 7/08 | 田区丸の内二丁目2番3号 三菱電機株式会社内 Tokyo (JP). |
| (21) 国際出願番号: | PCT/JP00/03638 | |
| (22) 国際出願日: | 2000 年6月5日 (05.06.2000) | (74) 代理人: 深見久郎, 外(FUKAMI, Hisao et al.); 〒530-0054 大阪府大阪市北区南森町2丁目1番29号 住友銀行南森町ビル Osaka (JP). |
| (25) 国際出願の言語: | 日本語 | (81) 指定国 (国内): CN, JP, KR, US. |
| (26) 国際公開の言語: | 日本語 | (84) 指定国 (広域): ヨーロッパ特許 (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). |
| (71) 出願人 (米国を除く全ての指定国について): 三菱電機株式会社 (MITSUBISHI DENKI KABUSHIKI KAISHA) [JP/JP]; 〒100-8310 東京都千代田区丸の内二丁目2番3号 Tokyo (JP). | | 添付公開書類:
— 国際調査報告書 |
| (72) 発明者; および | | 2文字コード及び他の略語については、定期発行される各PCTガゼットの巻頭に掲載されている「コードと略語のガイダンスノート」を参照。 |
| (75) 発明者/出願人 (米国についてのみ): 中西 甚吾 (NAKANISHI, Jingo) [JP/JP]; 〒100-8310 東京都千代 | | |

(54) Title: SYNCHRONOUS DEVICE

(54) 発明の名称: クロック同期装置



(57) Abstract: A synchronous device includes charge pump circuits (2, 7, 8) that prevent offset from occurring when the output potential (VC) at a loop filter (9) changes. Based on the potential (VC) at the output of the loop filter (9), control circuits (7,8) control gate potentials (VCP, VCN) of transistors (3,6) connected through switches (4,5) between source potentials (VCC, GND) and the output nodes of the loop filter (9) so that predetermined currents may flow in the transistors (3, 6).

(57) 要約:

本発明によるクロック同期装置に含まれるチャージポンプ回路（２， ７， ８）は、ループフィルタ（９）の出力電位（ V_C ）が変動した場合でもオフセットの発生を防止し得るものであって、ループフィルタ（９）の出力電位（ V_C ）に基づいて、切換回路（４， ５）によって電源電位（ V_{CC} ， GND ）のラインとループフィルタ（９）の出力ノードとの間に接続されたトランジスタ（３， ６）に予め定められた定電流が流れるようにトランジスタ（３， ６）のゲート電位（ V_{CP} ， V_{CN} ）を制御する制御回路（７， ８）を含む。

WO 01/95492 A1

PATENT COOPERATION TREATY

PCT



From the INTERNATIONAL BUREAU

NOTIFICATION OF RECEIPT OF
RECORD COPY

(PCT Rule 24.2(a))

To:

FUKAMI, Hisao
Sumitomo Bank Minamimori-machi
Building
1-29, Minamimori-machi 2-chome
Kita-ku, Osaka-shi
Osaka 530-0054
JAPON

Date of mailing (day/month/year) 04 July 2000 (04.07.00)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 900107	International application No. PCT/JP00/03638

The applicant is hereby notified that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

MITSUBISHI DENKI KABUSHIKI KAISHA (for all designated States except US)
NAKANISHI, Jingo (for US)

International filing date : 05 June 2000 (05.06.00)

Priority date(s) claimed :

Date of receipt of the record copy
by the International Bureau : 16 June 2000 (16.06.00)

List of designated Offices :

EP : AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
National : CN, JP, KR, US

ATTENTION

The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau.

In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:

- ☒ time limits for entry into the national phase
☒ confirmation of precautionary designations
☐ requirements regarding priority documents

A copy of this Notification is being sent to the receiving Office and to the International Searching Authority.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No. (41-22) 740.14.35

Authorized officer:

Masashi HONDA

Telephone No. (41-22) 338.83.38

PATENT COOPERATION TREATY

PCT



From the INTERNATIONAL BUREAU

NOTICE INFORMING THE APPLICANT OF THE
COMMUNICATION OF THE INTERNATIONAL
APPLICATION TO THE DESIGNATED OFFICES

(PCT Rule 47.1(c), first sentence)

To:

FUKAMI, Hisao
Sumitomo Bank Minamimori-machi
Building
1-29, Minamimori-machi 2-chome
Kita-ku, Osaka-shi
Osaka 530-0054
JAPON

Date of mailing (day/month/year) 13 December 2001 (13.12.01)		IMPORTANT NOTICE	
Applicant's or agent's file reference 900107			
International application No. PCT/JP00/03638	International filing date (day/month/year) 05 June 2000 (05.06.00)	Priority date (day/month/year)	
Applicant MITSUBISHI DENKI KABUSHIKI KAISHA et al			

1. Notice is hereby given that the International Bureau has **communicated**, as provided in Article 20, the international application to the following designated Offices on the date indicated above as the date of mailing of this notice:
KR,US

In accordance with Rule 47.1(c), third sentence, those Offices will accept the present notice as conclusive evidence that the communication of the international application has duly taken place on the date of mailing indicated above and no copy of the international application is required to be furnished by the applicant to the designated Office(s).

2. The following designated Offices have waived the requirement for such a communication at this time:
CN,EP,JP

The communication will be made to those Offices only upon their request. Furthermore, those Offices do not require the applicant to furnish a copy of the international application (Rule 49.1(a-bis)).

3. Enclosed with this notice is a copy of the international application as published by the International Bureau on 13 December 2001 (13.12.01) under No. WO 01/95492

REMINDER REGARDING CHAPTER II (Article 31(2)(a) and Rule 54.2)

If the applicant wishes to postpone entry into the national phase until 30 months (or later in some Offices) from the priority date, a **demand for international preliminary examination** must be filed with the competent International Preliminary Examining Authority before the expiration of 19 months from the priority date.

It is the applicant's sole responsibility to monitor the 19-month time limit.

Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II).

REMINDER REGARDING ENTRY INTO THE NATIONAL PHASE (Article 22 or 39(1))

If the applicant wishes to proceed with the international application in the **national phase**, he must, within 20 months or 30 months, or later in some Offices, perform the acts referred to therein before each designated or elected Office.

For further important information on the time limits and acts to be performed for entering the national phase, see the Annex to Form PCT/IB/301 (Notification of Receipt of Record Copy) and the PCT Applicant's Guide, Volume II.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer J. Zahra
Facsimile No. (41-22) 740.14.35	Telephone No. (41-22) 338.91.11

PCT

国際調査報告

(法8条、法施行規則第40、41条)
〔PCT18条、PCT規則43、44〕

出願人又は代理人 の書類記号 900107	今後の手続きについては、国際調査報告の送付通知様式(PCT/ISA/220) 及び下記5を参照すること。	
国際出願番号 PCT/JPO0/03638	国際出願日 (日.月.年) 05.06.00	優先日 (日.月.年)
出願人(氏名又は名称) 三菱電機株式会社		

国際調査機関が作成したこの国際調査報告を法施行規則第41条(PCT18条)の規定に従い出願人に送付する。
この写しは国際事務局にも送付される。

この国際調査報告は、全部で 3 ページである。

☐ この調査報告に引用された先行技術文献の写しも添付されている。

1. 国際調査報告の基礎

a. 言語は、下記に示す場合を除くほか、この国際出願がされたものに基づき国際調査を行った。

☐ この国際調査機関に提出された国際出願の翻訳文に基づき国際調査を行った。

b. この国際出願は、ヌクレオチド又はアミノ酸配列を含んでおり、次の配列表に基づき国際調査を行った。

☐ この国際出願に含まれる書面による配列表

☐ この国際出願と共に提出されたフレキシブルディスクによる配列表

☐ 出願後に、この国際調査機関に提出された書面による配列表

☐ 出願後に、この国際調査機関に提出されたフレキシブルディスクによる配列表

☐ 出願後に提出した書面による配列表が出願時における国際出願の開示の範囲を超える事項を含まない旨の陳述書の提出があった。

☐ 書面による配列表に記載した配列とフレキシブルディスクによる配列表に記載した配列が同一である旨の陳述書の提出があった。

2. ☐ 請求の範囲の一部の調査ができない(第I欄参照)。

3. ☐ 発明の単一性が欠如している(第II欄参照)。

4. 発明の名称は ☒ 出願人が提出したものを承認する。

☐ 次に示すように国際調査機関が作成した。

5. 要約は ☒ 出願人が提出したものを承認する。

☐ 第III欄に示されているように、法施行規則第47条(PCT規則38.2(b))の規定により国際調査機関が作成した。出願人は、この国際調査報告の発送の日から1カ月以内にこの国際調査機関に意見を提出することができる。

6. 要約書とともに公表される図は、

第 1 図とする。 ☒ 出願人が示したとおりである。

☐ なし

☐ 出願人は図を示さなかった。

☐ 本図は発明の特徴を一層よく表している。

A. 発明の属する分野の分類 (国際特許分類 (IPC))

Int. Cl. 7 H03L 7/08

B. 調査を行った分野

調査を行った最小限資料 (国際特許分類 (IPC))

Int. Cl. 7 H03L 7/06-7/23

最小限資料以外の資料で調査を行った分野に含まれるもの

日本国実用新案公報 1926-2000年
 日本国公開実用新案公報 1971-2000年
 日本国登録実用新案公報 1994-2000年
 日本国実用新案登録公報 1996-2000年

国際調査で使用した電子データベース (データベースの名称、調査に使用した用語)

C. 関連すると認められる文献

引用文献の カテゴリー*	引用文献名 及び一部の箇所が関連するときは、その関連する箇所の表示	関連する 請求の範囲の番号
X	JP, 11-225069, A (富士通株式会社), 17. 8月. 1999 (17. 08. 99), 第10頁左欄第25行-第14頁 左欄第42行, 第3図, (ファミリーなし)	1
Y		2, 3, 8- 10, 13, 16, 18- 20
A		4-7, 11, 12, 14, 15, 17

☐ C欄の続きにも文献が列举されている。☐ パテントファミリーに関する別紙を参照。

* 引用文献のカテゴリー

- 「A」 特に関連のある文献ではなく、一般的技術水準を示すもの
 「E」 国際出願日前の出願または特許であるが、国際出願日以後に公表されたもの
 「L」 優先権主張に疑義を提起する文献又は他の文献の発行日若しくは他の特別な理由を確立するために引用する文献 (理由を付す)
 「O」 口頭による開示、使用、展示等に言及する文献
 「P」 国際出願日前で、かつ優先権の主張の基礎となる出願

の日の後に公表された文献

- 「T」 国際出願日又は優先日後に公表された文献であって出願と矛盾するものではなく、発明の原理又は理論の理解のために引用するもの
 「X」 特に関連のある文献であって、当該文献のみで発明の新規性又は進歩性がないと考えられるもの
 「Y」 特に関連のある文献であって、当該文献と他の1以上の文献との、当業者にとって自明である組合せによって進歩性がないと考えられるもの
 「&」 同一パテントファミリー文献

国際調査を完了した日

16. 08. 00

国際調査報告の発送日

29.08.00

国際調査機関の名称及びあて先

日本国特許庁 (ISA/J P)

郵便番号100-8915

東京都千代田区霞が関三丁目4番3号

特許庁審査官 (権限のある職員)

和田 志郎

印

5W

9750

電話番号 03-3581-1101 内線 3575

C (続き) . 関連すると認められる文献		
引用文献の カテゴリー*	引用文献名 及び一部の箇所が関連するときは、その関連する箇所の表示	関連する 請求の範囲の番号
Y	J P, 07-177027, A (三菱電機株式会社), 14. 7	10
A	月. 1995 (14. 07. 95), 第6頁左欄第36行-第7頁 左欄第10行, 第1図, (ファミリーなし)	1-9, 11 -20
A	J P, 10-336021, A (日本電気株式会社), 18. 12	1-20
	月. 1998 (18. 12. 98), 第5頁左欄第7行-第7頁右 欄第33行, 第2図, E P, 881774, A2	



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**Europäisches
Patentamt**

Zweigstelle
in Den Haag
Recherchen-
abteilung

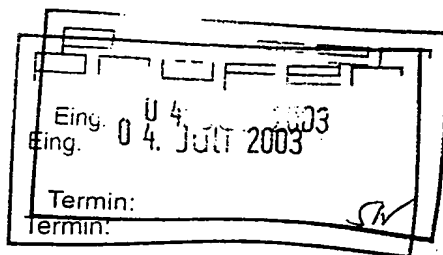
**European
Patent Office**

Branch at
The Hague
Search
division

**Office européen
des brevets**

Département à
La Haye
Division de la
recherche

Prüfer, Lutz H., Dipl.-Phys.
PRÜFER & PARTNER GbR,
Patentanwälte,
Harthausen Strasse 25d
81545 München
ALLEMAGNE



Datum/Date

04.07.03

Zeichen/Ref./Réf.

F01811-16080.5 ✓

Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n°.

00931699.3 ✓ 1233-JP0003638

Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire

✓
MITSUBISHI DENKI KABUSHIKI KAISHA ✓

COMMUNICATION

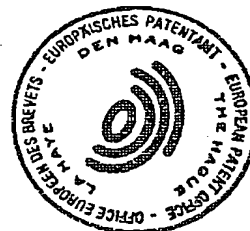
The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

☒ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.





DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	EP 0 583 586 A (MOTOROLA INC) ✓ 23 February 1994 (1994-02-23) * page 2, line 30 - page 4, line 23; figures 1,2 *	1,2,8,9	H03L7/08
Y	---	6,10	
Y	EP 0 528 651 A (AMERICAN TELEPHONE & TELEGRAPH) ✓ 24 February 1993 (1993-02-24) * column 3, line 5 - column 5, line 7; figures 1-4 *	6	
Y	WO 96 29785 A (HITACHI LTD ;HORI KAZUYUKI ✓ (JP); KOKUBO MASARU (JP)) 26 September 1996 (1996-09-26) * abstract; figures 1,4,7 *	6	
Y	US 6 031 429 A (SHEN FANG) ✓ 29 February 2000 (2000-02-29) * column 2, line 23 - column 3, line 38; figures 2-4 *	10	
A	US 4 378 509 A (HATCHETT JOHN D ET AL) ✓ 29 March 1983 (1983-03-29) * column 2, line 60 - column 4, line 52; figures 2-4 *	8-10	TECHNICAL FIELDS SEARCHED (Int.Cl.7)
The supplementary search report has been based on the last set of claims valid and available at the start of the search.			H03L

Place of search

THE HAGUE

Date of completion of the search

27 June 2003

Examiner

Balbinot, H

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons
& : member of the same patent family, corresponding document

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 93 1699

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

27-06-2003

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0583586	A	23-02-1994	US	5285114 A	08-02-1994
			DE	69315908 D1	05-02-1998
			DE	69315908 T2	09-07-1998
			EP	0583586 A1	23-02-1994
			JP	3333283 B2	15-10-2002
			JP	6112815 A	22-04-1994
<hr/>					
EP 0528651	A	24-02-1993	US	5208546 A	04-05-1993
			EP	0528651 A2	24-02-1993
<hr/>					
WO 9629785	A	26-09-1996	WO	9629785 A1	26-09-1996
<hr/>					
US 6031429	A	29-02-2000	NONE		
<hr/>					
US 4378509	A	29-03-1983	NONE		
<hr/>					

INTERNATIONAL SEARCH REPORT

International application No.
PCT/JP00/03638

A. CLASSIFICATION OF SUBJECT MATTER Int. Cl ⁷ H03L 7/08		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols) Int. Cl ⁷ H03L 7/06-7/23		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Jitsuyo Shinan Koho 1926-2000 Toroku Jitsuyo Shinan Koho 1994-2000 Kokai Jitsuyo Shinan Koho 1971-2000 Jitsuyo Shinan Toroku Koho 1996-2000		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP, 11-225069, A (Fujitsu Ltd.) 17 August, 1999 (17.08.99)	1
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Y	JP, 07-177027, A (Mitsubishi Electric Corporation) 14 July, 1995 (14.07.1995)	10
A	Page 6, left column, line 36 to page 7, left column, line 10; Fig. 1 (Family: none)	1-9, 11-20
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